



POE-FSH2422G-250

24 Port 802.3af PoE Web
Smart Switch

User's Manual



www.airlive.com



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FCC Statement

Federal Communication Commission Interference Statement This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

IMPORTANT NOTE

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.



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1

Introduction

1.1 Overview

The POE-FSH2422G-250 is a Power Control POE Switch, and total power is 250W. This switch provides 24 10/100Mbps RJ-45 ports and can support 2 Combo Gigabit RJ-45/SFP to uplink. This web-smart switch includes auto-MDI/MDIX crossover detection function. 24 of those ports are all built with PoE functionality, providing the ultimate choice in network flexibility. With this added PoE feature, this switch is an ideal solution for building wireless, IP surveillance, and VoIP networks.

It also provides port-based and 802.1Q tag VLAN function to provide better traffic management, reduces latency, improve security and save bandwidth. This is also a cost-saving feature as it reduces the need to add additional hardware to the network.

These 24 10/100Mbps RJ-45 support the IEEE 802.3af PoE protocol. Each port and transmit a maximum power 15.4 watts. User can also enable or disable power supply on PoE ports from UI.

Notice:

- This switch is using 48V 802.3af PoE standard. It does not work with passive PoE. Do not connect with passive PoE devices
- When plug in the mini-GBIC module, the device will activate mini-GBIC, and the RJ45 port will be disabled.

1.2 Guide to the Chapters

- Chapter 1: Introduction and Quick Setup guide. All the essential information including IP Address and Password information are in the Quick Setup section.
- Chapter 2: Detail installation instruction including module information and how to make Cat. 5 Cable
- Chapter 3: LED indicators
- Chapter 4: Detail information on Web management including how to setup remote management.



1.3 Quick Setup

Power-On the switch

- The POE-FSH2422G-250 Switch has a built-in power supply to operate with 100 ~ 240V AC, 50 ~ 60Hz power source.
- The AC power cord connector is located at the rear of the unit and the On/Off switch is next to the connector.
- After the Switch is powered on, it will perform “self-diagnostic” test. This process takes about 10 seconds to complete.

Important Information

The default IP address: 192.168.2.1

The default username is **admin**

The default password is **airlive**

This switch is using 48V 802.3af PoE standard. It does not work with passive PoE. Do not connect with passive PoE devices.

It is recommended that you install the switch with an UPS to protect from potential power surge.

LED Table

LED	Status	Description	No. Of LED
Power	On	Power on	Power
1000M	On	Link 1000Mbps	2 (25~26)
	Off	Link 10/100Mbps	
Link/ ACT	On	Link	26 (1~26)
	Flashing	Data activating	26 (1~26)
PoE	On	Port is linked to Power Device	24 (1~24)
	Off	No Power Device is connected	24 (1~24)

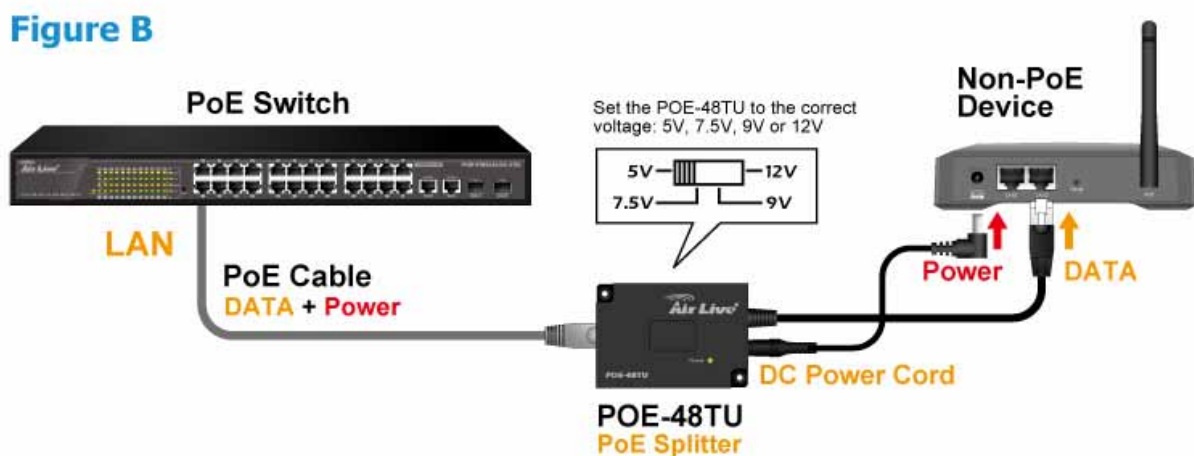
1.4 Installation Steps

This section lists the installation procedures in steps. Each step's instruction is thoroughly explained in the subsequent sections of this chapter.

Step 1: Connect your device's PoE port to the switch's POE port. The Gigabit ports are not PoE ports.



Step 2: Connect your device's PoE port to the switch's POE port (see Figure A). The Gigabit ports are not PoE ports.





Step 3: If you want to install the switch on the 19" rack, please install the mounting kit according to Figure C.

Figure C



Fastening the brackets on the Switch



Attaching the Switch to a 19-inch rack

Step 4: Your PoE device should get the power from the switch now. If you want to change settings via web management. Please follow the instructions below.

Step 5: Set your PC's IP address to 192.168.2.50.

Step 6: Open your web browser and enter "192.168.2.1" to get into the switch's web management.

Step 7: Enter "admin" for username. "airlive" for password.

Step 8: Please check the following chapters for more detailed configurations

1.5 Comparison Chart

Model	POE-FSH-2422G-250	POE-FSH2422G-390
Power Consumption	250 Watts (Max)	390 Watts (Max)
Power Input	100~240V/AC, 50~60Hz	
Max supply PoE Power per Device	15.4Watts per Port, 250 Watts totally	15.4Watts per Port, Full Power
Dimensions	445 x 220 x 45 mm (L x W x H)	440 x 332 x 44 mm (L x W x H)

Weight	2.54 kg	4.7 kg
Operating Temperature	0 to 45	
Storage Temperature	-20 to 90	
Humidity	10 to 90% RH (non-condensing)	
Certifications	FCC Class A, CE	

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Installation of the Switch

This chapter provides the detailed instructions for installation of the switch. For concise installation instruction, the previous chapter's "Quick Setup" section provides all the important information including IP address, password, and LED table for user's reference.

2.1 Unpack the Package

Before you begin the installation of POE-FSH2422G-250 Management Switch, make sure that you have all the necessary accessories that come with your package. Follow the steps below to unpack your package contents:

- Clear out an adequate space to unpack the package carton.
- Open the package carton and take out the contents carefully.
- Put back all the shipping materials such as plastic bag, padding and linings into the package carton and save them for future transport need.

After unpacking and taking out the entire package contents, you should check whether you have got the following items:

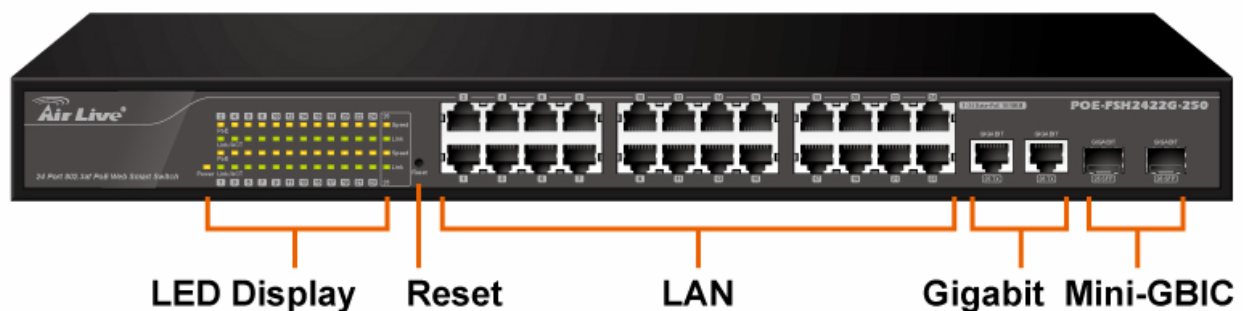
- POE- FSH2422G-250 24-Port 802.3af PoE Switch
- One AC power cord
- Quick Install Guide
- Support CD-ROM (The PDF version of this User's Manual can be found within)
- One pair Rack-mount kit + 8 Screws

If any of these above items is missing or damaged, please contact your local dealer for replacement.

2.2 Hardware Overview

Front Panel

The front panel of the web smart switch consists of 24 10/100Base-TX RJ-45 ports and 2 combo gigabit uplink RJ-45/SFP ports. The LED Indicators are also located on the front panel.



LED Indicators:

Comprehensive LED indicators display the status of the switch and the network (see the LED Indicators chapter below).

100BASE-TX Fast Ethernet PoE Ports (Port 1~24):

These ports are PoE enable ports. These PoE ports will be automatically activated when a compatible terminal is identified, and the PoE port will supply power to the connected PoE device.

For legacy devices that are not yet compatible, the PoE port will not offer the power to these devices. This feature allows users to freely and safely mix legacy and Power over Ethernet compatible devices on their network.

These ports support network speeds of either 10Mbps or 100Mbps, and can operate in half- and full- duplex transfer modes. These ports also support the automatic MDI/MDIX crossover detection function, providing true “plug and play” capability. Just plug-in the network cable to the hub directly and regardless if the end node is a NIC (Network Interface Card) or switch and hub.

1000BASE-T Gigabit Ethernet Ports (Port 25~26):

The Switch provides two Gigabit twisted pair ports, supported auto negotiable 10/100/1000Mbps and auto MDI/MDIX crossover detection function, this function gives true “plug and play” capability, just need to plug-in the network cable to the hub directly and don’t care if the end node is NIC (Network Interface Card) or switch and hub. These ports can operate in half-duplex mode for 10/100Mbps and full- duplex mode for 10/100/1000Mbps.

Note: When the port was set to “Forced Mode”, the Auto MDI/MDIX will be disabled.

Combo mini-GBIC Ports (Port 25~26)

The Switch is equipped with two combo mini-GBIC ports, supported optional 1000BASE-SX/LX mini-GBIC module. The 1000BASE-T port 25 and 26 are the same ports with the mini-GBIC port 25 and 26, when plug in the mini-GBIC module, the device will activate mini-GBIC, and the RJ45 port will be disabled.

Reset:

The Reset button is to reset all the setting back to the factory default.

Note: Be sure that you recorded the setting of your device, else all the setting will be erased when pressing the “Reset” button.

The Rear Panel

The 3-pronged power plug is placed at the rear panel of the switch right side shown as below.



2.3 Installation Site Preparation

You can mount POE-FSH2422G-250 24-Port 802.3af PoE Switch either on desktop or on a 19-inch rack. If you plan to mount the switch on desktop, please choose a steady, level surface in a well-ventilated area that is free from excessive dust. In any case, the installation site chosen for your switch has to comply with the following requirements:

- The surface where you want to mount the switch must be able to sustain at least 2.5kg.
- Do not place heavy objects (more than 3kg) on top of the switch.
- The location must preferably be free from excessive dust, away from heat vent, hot-air exhaust and direct sunlight.
- The switch should not be placed near large electric motors or other strong electromagnetic sources. As a reference, the strength of the electromagnetic field on site should not exceed the (RFC) standards for IEC 801-3, Level 2(3V/M) field strength.
- The air temperature in the location should be within a range of 0 to 45°C.
- The relative humidity in the location should not exceed 95% non-condensing humidity.
- The distance between the RJ-45 port and the standard network interface should not exceed 100 meters.
- Adequate space should be allowed in front of all the ports, so that each port is easily accessible for cable connections.
- Leave at least 10cm(4 inch) of space around the switch to allow heating dissipation

2.4 Rack Mounting

The POE-FSH2422G-250 PoE Switch can be mounted on a standard size 19-inch rack, which can in turn be placed in a wiring closet with other equipments.

Before you can mount the switch on the rack, first you must attach the mounting brackets on both sides of the switch with screws, and then mount it as a unit on the rack.

To mount the unit on a rack, please follow the steps below:

- Step 1. First, align the holes on the bracket with the holes on both side of the switch.
- Step 2. Insert screws into the holes and then fasten the bracket on one side of the switch with a screwdriver.
- Step 3. Repeat Step 1 and 2 to fasten the bracket on the other side of the switch.
- Step 4. Mount the unit on the rack and align the notches on both brackets with mounting holes on the rack, and then secure the unit with suitable screws.



2.5 Desktop Installation

The POE-FSH242G-250 PoE Switch has four rubber pads attached on each corner of its underside. These pads serve as cushioning against vibration and prevent the switch from sliding off its position. They also allow adequate ventilation space when you place the switch on top of another device.



- The location you choose to install your switch and the way you configure your network may greatly affect its performance. Please see the previous section for “installation site” preparation.
- Do not place more than 3kg (6.6lbs) of weight on the top of the switch.
- Leave at least 10cm (4 inch) of space around the switch to allow proper heating dissipation.

2.6 Cabling Requirements

For 100BASE-TX and 1000Base-T ports

The 24 RJ-45 station ports and the 1000Base-T ports of the optional Gigabit-Copper module require Cat. 5 twisted-pair UTP/STP cable for connection. When configuring within the 10/100/1000BASE-T cabling architecture, the cable distance should be within 100m.

The following table summarizes the cable requirement for 10/100/1000BASE-TX connection:

10BASE-T	100 ohm Category 3, 4, 5 UTP/STP cable
100BASE-TX	100 ohm Category 5 UTP/STP cable
1000BASE-T	100 ohm Category 5E UTP/STP cable or better

Auto MDI/MDI-X function

The POE-FSH2422G-250 PoE Switch is equipped with Auto-MDI/MDI-X function, which allows you to use straight-thru cable even when connecting to another switch/hub. Simply use the straight-through cable for all types of 10/100BASE-TX connections, either to a PC or to a networking device such as other hub or switch.

Connection Specification	10 /100Base-TX and 1000Base-T Ports
Interface	RJ-45
Cable to Use	
<i>To an end station</i>	Straight-through twisted-pair cable
<i>To a hub/switch</i>	Straight-through twisted-pair cable
Maximum Distance	100 meters

2.7 Connecting to Power

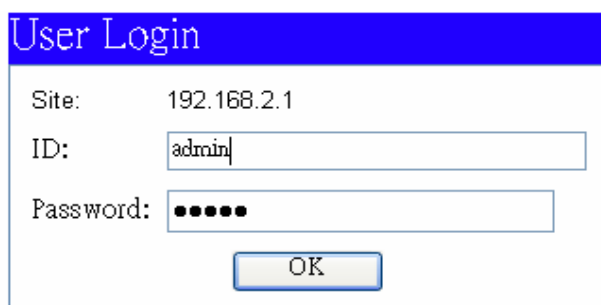
POE-FSH2422G-250 PoE Switch features a universal auto-select power supply unit, which allows a power connection to a wide range of input voltages from 100 to 240VAC @ 50 ~ 60Hz.

To establish its power connection, simply plug the female end of the power cord into the power connector on the rear of the switch and the male end of the power cord into a suitable power outlet. Once you have correctly plugged in the power, you can then turn on the Power Switch to activate the switch.

2.8 Reset to Default

When you forgot your IP or password, please use the reset button for the factory default setting. Please take the following steps to reset the Web Smart Switch back to the original default:

- Step 1. Turn on the POE-FSH2422G-250 PoE Switch.
- Step 2. Press and hold the reset button continuously for 5 seconds and release the reset button.
- Step 3. The switch will reboot for 10 seconds and the configuration of switch will back to the default setting.



The image shows a 'User Login' dialog box with a blue header. It contains three input fields: 'Site' with the value '192.168.2.1', 'ID' with the value 'admin', and 'Password' with six dots. An 'OK' button is located at the bottom right of the dialog.

Key in the user ID and the password to pass the authentication; the user ID and the password are “admin”

IP Address: 192.168.2.1

ID: admin

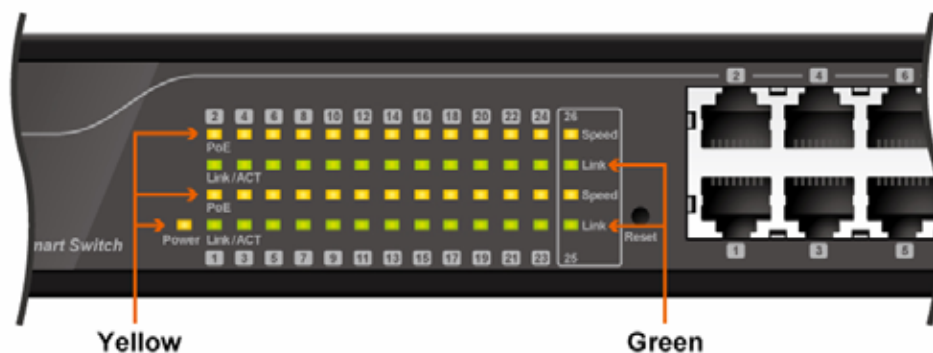
Password: airlvie

3

LED Indicators

Before connecting any network device to POE-FSH2422G-250 802.3af PoE Switch, you should take a few minutes to look over this chapter and get familiar with the front panel LED indicators of your Switch.

3.1 Comprehensive LEDs



3.2 LED Table

LED	Status	Description	No. Of LED
Power	On	Power on	Power
Speed	On	Link 1000Mbps	2 (25~26)
	Off	Link 10/100Mbps	
Link/ ACT	On	Link	26 (1~26)
	Flashing	Data activating	26 (1~26)
PoE	On	Port is linked to Power Device	24 (1~24)
	Off	No Power Device is connected	24 (1~24)

4

Web Management

The POE-FSH2422G-250 PoE Switch can be configured by web based interface, including administrator, port management, VLAN setting, per port counter, trunk setting, QoS setting, security filter, configuration/ backup/recovery, miscellaneous, log out, and so on. The device based smart switch supports main stream browsers, such as IE 6.0~7.0, Firefox 2.0~3.0, to configure the device function. All functions are illustrated below.

4.1 Setup your computer for Web management

The Concept of Subnet

Under the TCP/IP environment, network devices must be on the same subnet in order to see each other. This means before you can configure the switch through web browser, you must set your computer to the same subnet as the switch. For two network devices to be on the same subnet, they must have the following 2 criteria:

- Their IP address must be on the same subnet. For example, if one IP address is 192.168.2.1. The other's IP address must be 192.168.2.x (x is any number between 2 and 254) for Class C subnet. To find out the IP address information for your computer. Under WinNT/2000/XP, please open Command Line window and type "ipconfig". Under Win9x, please run "winipcfg".
- They must have the same subnet mask. For example, if one machine is 255.255.255.0. The other machine must also set to the same 255.255.255.0 mask.

Configure your computer's IP

Before accessing the switch through web browse, please follow the instruction below to configure your computer's IP to the same subnet as the switch. If your switch's IP has not been changed, it should have the following factory default value:

The switch's Default IP

IP Address: 192.168.2.1
Subnet Mask: 255.255.255.0
Gateway: 192.168.2.254

Now if your computer's IP is not in the same subnet as the switch, please follow the steps below to change the computer's IP:

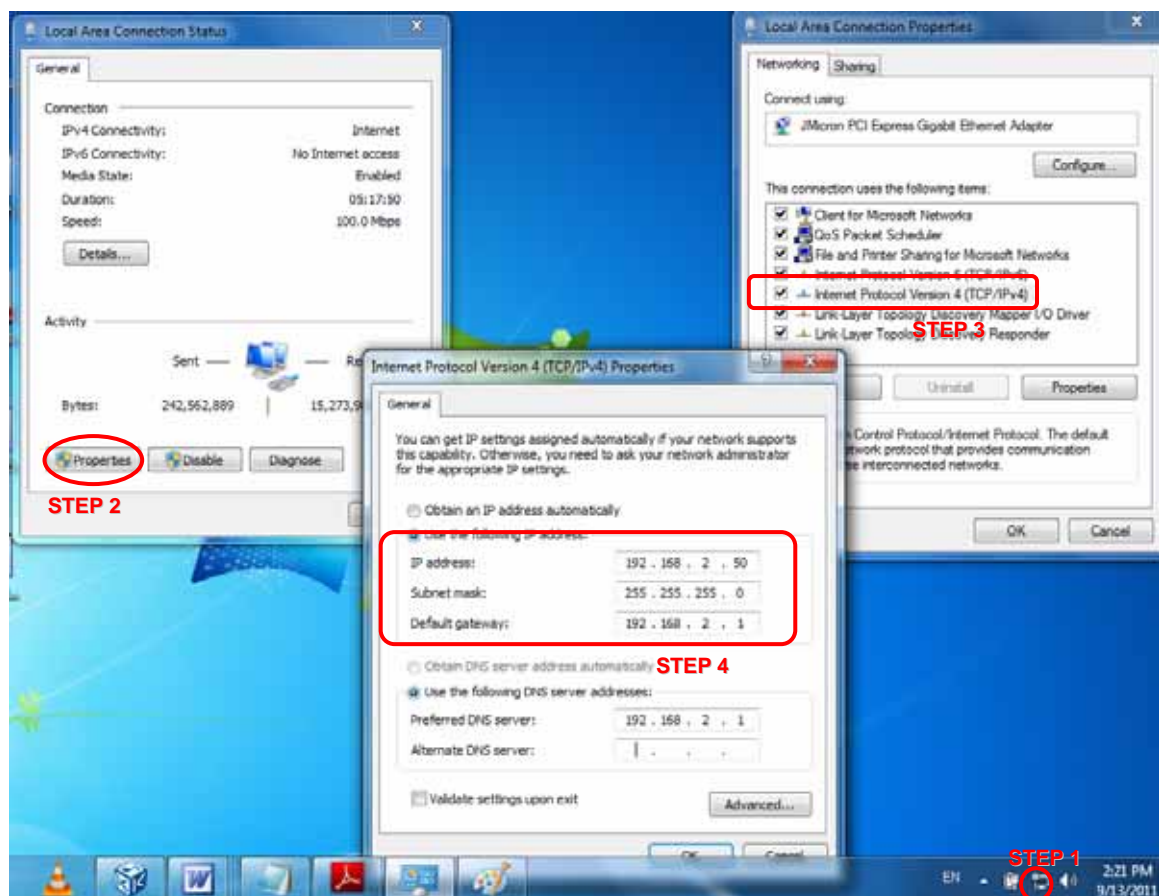


Figure 4-1 Manual IP setting

- Step 1. Double click on the network connection status icon on the task bar. This should bring up a window showing the status of the current network connection. If there is no network status icon on the task bar, please go to the "Start -> Settings -> Network -> Local Connection" of the task bar's Start menu.
- Step 2. Click on the "property" icon.
- Step 3. Double click on the "Internet Protocol (TCP/IP)
- Step 4. Click on "Use the following IP address" button and enter the computer's address manually. This IP address must be on the same subnet as the

switch but different from the switch's IP. Please make sure the IP is not used by other network device. If the switch's IP address is of factory's default value. We recommend enter the following for computer's IP:

IP Address: 192.168.2.101

Subnet Mask: 255.255.255.0

Gateway: 192.168.2.254

Click "Okay" after finish entering the IP.

*Note1: If IP address of the switch is lost, please reset the switch to factory default setting via the reset button.

*Note2: The POE-FSH2422G-250 has DHCP client ability. This allows DHCP server (or router) to assign IP automatically. However, we do not recommend turning on the DHCP client because the DHCP server assign the IP randomly. The DHCP client should be used only when connecting directly to Cable Modem (for remote management) whose service provider uses DHCP for IP assignment.

Now, you will be able to access the switch by typing in the switch's IP address on the web browser.

4.2 Remote Management

In this section, you will learn how to setup your computer and the router for remote web management. Remote management allows MIS to manage a switch from outside of the switch's IP domain or from Internet. Depending on the type of Internet connection you have, there are two ways to setup the switch to be available through Internet.

Direct Connection to Internet





If you have a fixed IP xDSL account or cable modem account, and there is no router in the network, you can connect your switch directly to Internet via xDSL modem/Cable Modem. However, this method is not recommended as the LAN will be directly exposed to the Internet.

Fixed IP: If your ISP has assigned you a fixed IP. Please go to the Switch's IP configuration and enter the IP address, Subnet Mask, and Gateway information offered by your ISP. If your ADSL connection is PPPoE or PPTP type, you have to connect through a router for remote management.

Cable Modem: If your Cable service provider uses DHCP for IP assignment, please turn on the DHCP function under IP configuration. Make sure there is no DHCP server in the network. Then the Cable provider will assign the switch with an IP and Gateway. Please contact with your ISP for further information about the IP address assigned to the switch.

When the configuration is finished, the Remote PC can access the switch by typing the switch's IP address on the web browser.

Connect through Broadband Router



If you have an IP sharing router in the network, you can open a virtual server on the router to allow the switch to be managed through Internet. This method is more recommended as the broadband router provides natural fire wall protector from hackers.

In the diagram above, the router has the WAN (given by the ISP) port IP address "201.100.1.5" and LAN port address "192.168.0.254". The switch's IP is "192.168.0.200". Please follow the instruction below to setup the router and switch for remote access:

On the Switch

- On the IP setting, set the gateway to Router's LAN port address 192.168.0.254
- Please make sure the subnet mask is the same as the router's.
- On the Router
- Go to router's Virtual Server setting and open the Web port (TCP Port 80) to the switch's IP address 192.168.0.200
- If your router require enter the beginning and ending Port (from PortX to PortX), enter 80 for both.

Now the Remote PC will be able to access your switch by entering "201.100.1.5" in the Web browser's address field.

4.3 Get into the Web Management

After you have properly configured the computer and switch's IP, you can get into the web management by the following steps:

- Step 1. Open the Internet Explorer
- Step 2. Enter the switch's IP address in the Address field and press enter.
- Step 3. When prompt for User's name and Password, enter the following information:
 - User's Name: **admin**
 - Password: **airlive**

You should see the following welcome screen after the process is completed:





Menu Bar

On the left side of the screen is the Menu bar where you can click to configure management functions. Most configuration functions are under the “Administrator” menu. We will explain the menu items in the remaining section of this chapter.

Top Switch Image.

The switch’s image on the upper portion of the screen gives the quick overview of the port connection status. When a port is plugged in, the switch’s image will show a “plug” on the corresponding port. Click on a port will show the quick port status.

4.4 Administrator

There are many management functions that can be set or performed if you click the Administrator on Home Page, including:

- Authentication Configuration
- System IP Configuration
- System Status
- Load Default Setting
- Firmware Update
- Reboot Device

In the following sessions, we will talk in detail about the management functions under the Administrator menu.

4.5 Authentication Configuration (Administrator menu)

This page shows authentication configuration information. User can set new Username and Password in this page.

Authentication Configuration

Setting	Value
Username	<input type="text" value="admin"/> max:15
Password Confirm	<input type="password" value="•••••"/> max:15 <input type="password" value="•••••"/>
<input type="button" value="Update"/>	

Note:

Username & Password can only use "a-z","A-Z","0-9","_","+","-","=".

4.6 System IP Configuration (Administrator menu)

This page shows system configuration including the current IP address and sub-net mask and gateway.

System IP Configuration

Setting	Value
IP Address	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="2"/> . <input type="text" value="1"/>
Subnet Mask	<input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>
Gateway	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="X"/>
<input type="button" value="Update"/>	

User can configure the IP settings, Subnet Mask, Gateway as below:

- IP address: Manually assign the IP address that the network is using. The default IP is 192.168.2.1
- Subnet Mask: Assign the subnet mask to the IP address.
- Gateway: Assign the network gateway for industrial switch.

If you change the IP address of this switch and then press Update. It will show “update successfully” then press Reboot button. It will enter user login screen automatically.

4.7 System IP Configuration (Administrator menu)

This page is used to check the status of switch, including Switch MAC address and software version. The comment field allows the network administrator to input an easy-to-remember nickname for this switch. The legal characters are “a~z” and “A~Z”, “_”, “-”, “+”, “0 ~9”, excluding special character.

System Status

MAC Address	
Number of Ports	24+2
Comment	switch MAX:15
System Version	V101210
<input type="checkbox"/> Idle Time Security	Idle Time: 0 (1~30 Minutes) <input type="radio"/> Auto Logout(Default). <input type="radio"/> Back to the last display.
<input type="button" value="Update"/>	

Note:
Comment name only can use "a-z", "A-Z", "_", "+", "-", "0-9"

- MAC Address: Displays the unique hardware address assigned by manufacturer (default).
- Number of Ports: Displays number of ports in the switch.
- System Version: Displays the switch's firmware version.

And then click Update button.

4.8 Load default setting (Administrator menu)

Clicking the Load button will make the switch being set to the original configuration.

Load Default Setting

recover switch default setting excluding the IP address, User name and Password

Figure 4-8 Load default setting

Clicking the Load button will make the switch being set to the original configuration.

Note: It exclude to change user name, password and IP configuration. If you want to restore default setting including IP and user name password, then you can press the reset

button for hardware base reset. More detail information about Load Default Setting - Hardware Base is described as following.

The purpose of this function is to provide a method for the network administrator to restore all configurations to the default value.

- Step 1. To activate this function, the user should follow the following procedures.
Press the “Load default” button, then you will see the LED blinking.
- Step 2. When LED starts blinking, it means the CPU is executing the “load default” procedure. You can release the button now.

After completing this procedure, all the factory default value will be restored. It includes the IP address, the user name, the password and all switch configurations.

4.9 Firmware Update (Administrator menu)

Before the firmware update procedure is executed, you should enter the password twice and then press Update button. The smart switch will erase the flash memory. There is a self-protection mechanism in the Boot Loader, so the Boot Loader will keep intact. Even though the power is turned off or the cable link fails during the firmware update procedure, the Boot loader will restore the code to firmware update page.



The screenshot shows a web page titled "Firmware Update". Below the title, it says "Please input the password to continue the Firmware Update process." There are two input fields: "Password" and "ReConfirm", each followed by a text box. Below these fields is an "Update" button. At the bottom, there is a notice: "Notice: After clicking the 'UPDATE' button, IF the firmware update webpage is not redirected correctly or is shown as 'Webpage not found'. Please connect to <http://192.168.2.1>".

After pressing Update button, the old web code will be erased. Then you can select the image file and press “update” button to update the firmware you need.

4.10 Reboot Device (Administrator menu)

Click Confirm button to reboot the device.



Reboot Device:
Click "Confirm" to Reboot the Device

Note: The reboot is for software base instead of hardware base

4.11 Port Management

There are many management functions can be set or performed if you click the Port Management on Home Page, including:

- Port Configuration
- Port Mirroring
- Bandwidth Control
- Broadcast Storm Control
- POE

In the following sessions, we will talk in detail about the management functions under the Port Management menu.

4.12 Port Configuration (Port Management menu)

In Port Configuration, you can set and view the operation mode for each port.

Port Configuration

Function	Tx/Rx Ability	Auto-Negotiation	Speed	Duplex	Pause	Backpressure	Addr. Learning
Select Port No:							
<div> <input type="checkbox"/> 01 <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04 <input type="checkbox"/> 05 <input type="checkbox"/> 06 <input type="checkbox"/> 07 <input type="checkbox"/> 08 <input type="checkbox"/> 09 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> 23 <input type="checkbox"/> 24 <input type="checkbox"/> 25 <input type="checkbox"/> 26 </div>							
<input type="button" value="Update"/>							

Port	Current Status				Setting Status							
	Link	Speed	Duplex	FlowCtrl	Tx/Rx Ability	Auto-Nego	Speed	Duplex	Pause	Backpressure	Addr. Learning	
1	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
2	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
3	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
4	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
5	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
6	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
7	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
8	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
9	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
10	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
11	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
12	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
13	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
14	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
15	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
16	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
17	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
18	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
19	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
20	---	100M	FULL	ON	ON	AUTO	100M	FULL	ON	ON	ON	
21	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
22	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
23	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
24	---	---	---	---	ON	AUTO	100M	FULL	ON	ON	OFF	
25	---	---	---	---	ON	AUTO	10	FULL	ON	ON	OFF	
26	---	---	---	---	ON	AUTO	10	FULL	ON	ON	OFF	

- Auto-Negotiation: Enable and Disable. Being set as 'Enable', the Speed, Duplex mode, Pause, Backpressure, TX Capability and Address Learning are negotiated automatically. When you set it as 'Disable', you have to assign those items manually.
- Speed: When the Auto-Negotiation column is set as Disable, users have to set the connection speed to the ports ticked.
- Duplex: When the Auto-Negotiation column is set as Disable, users have to set the connection mode in Half/Full to the ports ticked.
- Pause: Flow Control for connection at speed of 10/100Mbps in Full-duplex mode.
- Backpressure: Flow Control for connection at speed of 10/100Mbps in Half-duplex mode.
- TX/RX Capability: When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.
- Addr. Learning: When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.
- Select Port No.: Tick the check boxes beside the port numbers being set.
- Click Update to have the configuration take effect.
- Current Status: Displays current port status.
- Setting Status: Displays current status.

Click Update to make the configuration effective

4.13 Port Mirroring (Port Management menu)

The Port mirroring is a method for monitoring traffic in switched networks. That Traffic through ports can be monitored by any of the ports means traffic goes in or out monitored (source) ports will be duplicated into mirroring (destination) port.

Port Mirroring

Dest Port	1	2	3	4	5	6	7	8	9	10	11	12	13
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14	15	16	17	18	19	20	21	22	23	24	25	26
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitored Packets	Disable ▾												
Source Port	1	2	3	4	5	6	7	8	9	10	11	12	13
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14	15	16	17	18	19	20	21	22	23	24	25	26
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Update													
Multi to Multi Sniffer function													

- Destination (mirroring) port for monitoring Rx only, Tx only or both RX and TX traffic which come from the source port. Users can connect the mirroring port to LAN analyzer or Netxray.
- Monitored Packets: Pull down the selection menu to choose what kind of packet is to be monitored.
- Source Port: The ports that the user wants to monitor. All monitored port traffic will be copied to mirroring (destination) port. Users can select multiple source ports by ticking the check boxes beneath the port number label to be monitored.

And then, click Update to have the configuration take effect.

4.14 Bandwidth Control (Port Management menu)

This page allows the setting of the bandwidth for each port. The TX rate and Rx rate can be filled with the number ranging from 1 to 255. This number should be multiplied by the selected bandwidth resolution to get the actual bandwidth.

Bandwidth Control

Port No	Tx Rate	Rx Rate
01	(0~255) (0:Full Speed)	(0~255) (0:Full Speed)
Speed Base	<div>Low</div> <div>Low:</div> <div>(1)32Kbps Tx/Rx bandwidth resolution for port 1~ port 26.</div> <div>Actual Tx/Rx bandwidth =Rate value x 32 kbps. The rate value is 1~255.</div> <div>High:</div> <div>(1)256Kbps Tx/Rx bandwidth resolution for port 1~ port 24.</div> <div>Actual Tx/Rx bandwidth=Rate value x 256Kbps. The rate value is 1~255.</div> <div>When link speed is 10MB. The rate value is 1~39.</div> <div>(2)the bandwidth resolution is 2048Kbps for port 25, port 26.</div> <div>Actual Tx/Rx bandwidth=Rate value x 2048Kbps. The rate value is 1~255.</div> <div>When link speed is 10MB. The rate value is 1~4.</div> <div>When link speed is 100MB. The rate value is 1~48.</div>	
<div>Update</div> <div>LoadDefault</div>		

If the link speed of selected port is lower than the rate that you seting, this system will use the value of link speed as your setting rate.

Port No.	Tx Rate	Rx Rate	Link Speed	Port No.	Tx Rate	Rx Rate	Link Speed
1	Full Speed	Full Speed	---	14	Full Speed	Full Speed	---
2	Full Speed	Full Speed	---	15	Full Speed	Full Speed	---
3	Full Speed	Full Speed	---	16	Full Speed	Full Speed	---
4	Full Speed	Full Speed	---	17	Full Speed	Full Speed	---
5	Full Speed	Full Speed	---	18	Full Speed	Full Speed	---
6	Full Speed	Full Speed	---	19	Full Speed	Full Speed	---
7	Full Speed	Full Speed	---	20	Full Speed	Full Speed	100M
8	Full Speed	Full Speed	---	21	Full Speed	Full Speed	---
9	Full Speed	Full Speed	---	22	Full Speed	Full Speed	---
10	Full Speed	Full Speed	---	23	Full Speed	Full Speed	---

4.15 Broadcast Storm Control (Port Management menu)

The switch implements a broadcast storm control mechanism. Tick the check boxes to have them beginning to drop incoming broadcast packets if the received broadcast packet counts reach the threshold defined. Each port's broadcast storm protection function can be enabled individually by ticking the check boxes.

Broadcast Storm Control

Threshold	63 1~63												
Enable Port	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<div>Update</div>													

This value indicates the number of broadcast packet which is allowed to enter each port in one time unit. One time unit is 50us for Gigabit speed, 500 us for 100Mbps speed and 5000us for 10Mbps speed

Note: This effect may be not significant for long broadcast packet, since the broadcast packet count passing through the switch in a time unit is probably less than the specified number.

The broadcast packet is only checked at the selected port and the number of broadcast packets is counted in every time unit. One time unit is 500 us for 10Mbps speed and 5ms for 100Mbps. The excessive broadcast packet will be discarded. For those broadcast packets incoming from the un-selected port, the switch treats it as the normal traffic.

- **Threshold:** Type in the threshold in the range between 1 and 63 to limit the maximum byte counts, which a port can send or receive in a period of time.
- **Enable Port:** Having ticked the boxes, the port will stop transmitting or receiving data when their sending byte counts or receiving byte counts reach the defined threshold.

Click Update to have the configuration take effect.

4.16 POE (Port Management menu)

User could know per PoE port out power status in this page and also enable or disable per port.

POE Configuration

Port	1	2	3	4	5	6	7	8
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PSE Current	No Load	No Load	No Load	No Load	No Load	No Load	No Load	No Load
Minimum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---
Port	9	10	11	12	13	14	15	16
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PSE Current	No Load	No Load	No Load	No Load	No Load	No Load	No Load	No Load
Minimum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---
Port	17	18	19	20	21	22	23	24
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PSE Current	No Load	No Load	No Load	No Load	No Load	No Load	No Load	No Load
Minimum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---

Update

Update: Update the power control function.
 Enable ☒ Power On
 Enable ☐ Power Off

4.17 VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic, so only the members of the same VLAN will receive traffic from the ones of the same VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

There are many management functions can be set or performed if you click the VLAN Setting on Home Page, including:

- VLAN Mode
- VLAN Member
- Multi to 1 Setting

In the following sessions, we will talk in detail about the management functions under the VLAN Setting menu.

4.18 VLAN Mode (VLAN Setting)

You may select the VLAN Mode of the switch. Port-based VLAN is for separating traffic only on this single switch. There is no handover of network traffic within VLAN groups to other switches. For the handover to other switches use Tag Based VLAN. In VLAN Mode you can switch from Tag to Port Based VLAN. Port Based VLAN is the default mode.

After switching to Tag Based VLAN Mode, the screen changes. On this screen you can now define and configure your Up- and Downlink ports. These are important since here the handover between the switches of your network takes place.

VLAN Mode

VLAN Mode

Port Based VLAN

Change VLAN mode

VLAN Mode

Tag Based VLAN

Change VLAN mode

VLAN Mode	Port 01	Port 02	Port 03	Port 04	Port 05	Port 06	Port 07	Port 08	Port 09	Port 10	Port 11	Port 12	Port 13
Tag Mode	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag
	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag
	Port 14	Port 15	Port 16	Port 17	Port 18	Port 19	Port 20	Port 21	Port 22	Port 23	Port 24	Port 25	Port 26
	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag	⊖ AddTag ⊕ don't exist ⊖ RemoveTag

Note:
If the link partner is a network interface card, it probably cannot recognize the VLAN tag.
In this case, it is strongly recommended the network administrator to remove the VLAN tag of the corresponding port.

- VLAN Mode: Displays VLAN mode: port based/Tag based VLAN. Here you can also switch back to Port Based VLAN Mode
- Add tag means the outgoing packet of the selected port will be inserted a 802.1Q tag. Use this setting for your Up- and Downlink Ports in your VLAN Tagged Network.

- Don't care means the outgoing packet of the selected port keep the original packet received at the source port. This is the default setting when starting VLAN configuration. You should change to either Add or Remove Tag.
- Remove tag means the 802.1Q tag of the outgoing packet of the selected port will not be sent. Use this setting for your Network Connections to PCs. Only packets of the VLAN Group the Port is member of will be sent.

4.19 VLAN Member (VLAN Setting)

The ports need to be made member of your VLAN groups. This is for Tag Based and Port Based VLAN Mode. The screen here looks different whether you run Tag Based or Port Based Mode.

VLAN Member in Port Based Mode

VLAN Member Setting (Port Based)

Port	01	02	03	04	05	06	07	08	09	10	11	12	13
01	01	02	03	04	05	06	07	08	09	10	11	12	13
02	01	02	03	04	05	06	07	08	09	10	11	12	13
03	01	02	03	04	05	06	07	08	09	10	11	12	13
04	01	02	03	04	05	06	07	08	09	10	11	12	13
05	01	02	03	04	05	06	07	08	09	10	11	12	13
06	01	02	03	04	05	06	07	08	09	10	11	12	13
07	01	02	03	04	05	06	07	08	09	10	11	12	13
08	01	02	03	04	05	06	07	08	09	10	11	12	13
09	01	02	03	04	05	06	07	08	09	10	11	12	13
10	01	02	03	04	05	06	07	08	09	10	11	12	13
11	01	02	03	04	05	06	07	08	09	10	11	12	13
12	01	02	03	04	05	06	07	08	09	10	11	12	13
13	01	02	03	04	05	06	07	08	09	10	11	12	13
14	01	02	03	04	05	06	07	08	09	10	11	12	13
15	01	02	03	04	05	06	07	08	09	10	11	12	13
16	01	02	03	04	05	06	07	08	09	10	11	12	13
17	01	02	03	04	05	06	07	08	09	10	11	12	13
18	01	02	03	04	05	06	07	08	09	10	11	12	13
19	01	02	03	04	05	06	07	08	09	10	11	12	13
20	01	02	03	04	05	06	07	08	09	10	11	12	13
21	01	02	03	04	05	06	07	08	09	10	11	12	13
22	01	02	03	04	05	06	07	08	09	10	11	12	13
23	01	02	03	04	05	06	07	08	09	10	11	12	13
24	01	02	03	04	05	06	07	08	09	10	11	12	13
25	01	02	03	04	05	06	07	08	09	10	11	12	13
26	01	02	03	04	05	06	07	08	09	10	11	12	13

In Port Based Mode you see a matrix of your 24 Ports. Simply select the port on top screen you want to configure, click on Read, and then select or deselect the ports that are on the same VLAN group. In this configuration mode you do not need to worry about defining VLAN groups and VLAN IDs.

VLAN Member in Tag Based Mode

In Tag Based Mode you need to define and configure your VLAN groups. Since you want the handover to other switches take place smoothly, the VLAN IDs (Numbers) need to be like on the rest of your network. On other switches you may have the chance to configure names. These are just for your reference. Only the numbers are important!

There firstly add your VLAN Groups (identified throughout your network by unique and constant numbers). Start with IDs from 100 and up. Keep in mind that some switches use “1” as the default, while others use “4095” or “4096” as default. Starting with 100 gives you enough free room and less compatibility issues.

So enter “100” in the field right of VID Setting, then select or deselect which ports are member of that group. Your up- and downlink ports need to member of every existing group! Then click on add. The new group with its setting will be displayed at the bottom of the screen.

With the PVID Setting you define to which VLAN group incoming traffic belongs. Consider the example that Port 1 is member of group 100 and 101. A simple PC is connected to Port 1. If that PC is now sending out data, with PVID you define if that data is for group 100 or 101.

4.20 Multi to 1 Setting (VLAN Setting)

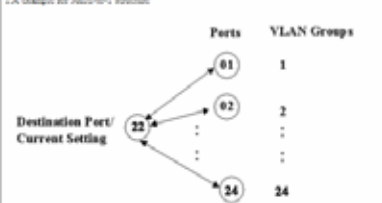
Multi to 1 VLAN is used in CPE side of Ethernet-to-the-Home and is exclusive to VLAN setting on VLAN Member Setting. When VLAN member Setting is updated, multi to 1 setting will be void and vice versa. The disable port means the port which will be excluded in this setting. All ports excluded in this setting are treated as the same VLAN group. In a normal Tag Based VLAN network you will not need this configuration option.

Multi to 1 Setting

Destination Port/Id	Port												
Current Setting	01	02	03	04	05	06	07	08	09	10	11	12	13
Disable Port	14	15	16	17	18	19	20	21	22	23	24	25	26

Note: "Disabled port" defines the switch physical port which is disabled.

1.A example for Multi-to-1 structure



2. The original setting of the VLAN Group will be cleared and replaced by this special structure if you enable this function.
On the other hand, if you set the VLAN Group again, this special structure will be cleared and replaced by your newest setting.

3. This configuration is port base VLAN only.

4.21 Per Port Counter

This page provides port counter of each port. There are 4 categories: Receive Packet & Transmit Packet/ Transmit & Collision / Receive Packet & Drop /Receive & CRC error. Once you change the counter category, the counter will be cleared automatically.

- Transmit packet& collision: This category shows the packets outgoing from the switch and the count of collision.
- Receive packet& Transmit packet: This category shows both the received packet count(excluding the incorrect packet) and the transmitted packet count.
- Receive packet & Drop packet: This category shows the number of received valid packet and the number of dropped packet.
- Receive packet & CRC packet: This category shows the received correct packet and received CRC error.
- Refresh: Press “Refresh” button will aggregate the number of the counter for all ports. Clear: Press “clear” will clear all counters.

4.22 Trunking

Port trunk allows multiple links to be bundled together and act as a single physical link for increased throughput. It provides load balancing, and redundancy of links in a switched inter-network. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method that called a hash algorithm. The hash algorithm automatically applies load balancing to the ports in the trunk. A port failure within the trunk group causes the network traffic to be directed to the remaining ports. Load balancing is maintained whenever a link in a trunk is lost or returned to service. This switch may use Port ID, Source MAC Address, Destination MAC Address, or a combination of Source MAC Address and Destination MAC Address to be the selection for Trunk Hash Algorithm. Traffic pattern on the network should be considered carefully before applying it. When a proper hash algorithm is used, traffic is kind of randomly decided to be transmitted across either link within the trunk and load balancing will be seen.

This managed switch supports two trunk group, each trunk consists of 2~4 ports. Trunk hash algorithm can be selected according to 4 different methods.

Trunking

System Priority	1 (1~65535)
Link Aggregation Algorithm	MAC Src&Dst ▼
Submit	

Refresh

	Link Group 1				Link Group 2				Link Group 3	
Member	P1	P2	P3	P4	P5	P6	P7	P8	P25	P26
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	--	--	--	--	--	--	--	--	--	--
State	Disable ▼				Disable ▼				Disable ▼	
Type	LACP ▼				LACP ▼				LACP ▼	
Operation Key	1 (1~65535)				2 (1~65535)				3 (1~65535)	
Time Out	Short Time Out ▼				Short Time Out ▼				Short Time Out ▼	
Activity	Passive ▼				Passive ▼				Passive ▼	
Submit										

Note: If you enable LACP on some specified ports and their link partners are normal port without LACP, these specified ports cannot trans

4.23 QoS Setting

Here you can configure QoS policy priority mode and CoS (Class of Service) configuration. QoS (Quality of Service) refers to mechanisms in the network software that make the actual determination of which packets have priority. CoS refers to feature sets, or groups of services, that are assigned to users based on company policy. If a feature set includes priority transmission, then CoS winds up being implemented in QoS functions within the routers and switches in the network. In an enterprise network, class of service (CoS) differentiates high-priority traffic from lower-priority traffic. Tags may be added to the packets to identify such classes, but they do not guarantee delivery as do quality of service (QoS) functions, which are implemented in the network devices.

There are many management functions can be set or performed if you click the QoS Setting on Home Page, including:

- Priority Mode
- Port, 802.1p, IP/DS based
- TCP/UDP Port Based

In the following sessions, we will talk in detail about the management functions under the QoS Setting menu.

4.24 Priority Mode (QoS Setting)

There are three priority modes available to specify the priority of packets being serviced. Those include First-In-First-Out, All-High-Before-Low, and Weight-Round-Robin.

Priority Mode

Priority Mode

Mode

☒ First-In-First-Out
☐ All-High-before-Low
☐ Weight-Round-Robin

Low weight: High weight:

Update

Note: When the queue weight is set to "0", it will be treated as "8".
The "low weight" and "high weight" means the ratio of the packet in the transmit queue. For example,
if "low weight" and "high weight" are set to "3" and "5", the ratio of the transmit packet for the low priority to high priority is 3/5.

- First-In-First-Out: Packets are placed into the queue and serviced in the order they were received.
- All-high-before-low(Strict priority) : All packets will be assigned to either high priority queue (Queue 2) or low priority queue (Queue 1). The packet on the low priority queue will not be forwarded until the high priority queue is empty.
- WRR mode: There are 4 priority queues for Weighted-and-round-robin (WRR) mode. When this mode is selected, the traffic will be forwarded according to the number set in each queue.

4.25 Port, 802.1p, IP/DS based (QoS Setting)

Class of Service Configuration

P-Enable High Priority

Port No./Mode	Port Base	VLAN Tag	IP / DS	Port No./Mode	Port Base	VLAN Tag	IP / DS
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Update

As long as any of three COS schemes(802.1p/IP TOS/DS or Port Base) is mapped to "high", the data packet will be treated as the high priority.

4.26 TCP/UDP Port Based (QoS Setting)

The user can select the protocol that will be forwarded as the specified mode. There are 3 user-defined UDP/TCP port groups and many well-known TCP/UDP ports. The user-defined port number may be a range or a specific number, depending on the mask.

The operating theory for all 4 CoS types can be illustrated by the following figure and table. TCP/UDP CoS is a global setting for all ports and has no connection with the physical port. Other CoS types have a connection with the physical port.

4.27 Security

There are many management functions can be set or performed if you click the Security on Home Page, including:

- MAC Address Binding
- TCP/UDP Filter

In the following sessions, we will talk in detail about the management functions under the Security menu.

4.28 MAC Address Binding (QoS Setting)

This function provides a method for the administrator to specify the relationship between the physical port and the MAC address. Only the packet with specified source MAC address can be forwarded. By specifying the MAC address to each port, the network administrator can prevent the unauthorized user from accessing the switch. Each port can correspond to up to 3 MAC addresses.

To activate the port binding function, you should enter the correct MAC address, select the port number, and set the port binding to “enable” and then press “update”.

MAC Address Binding

Port No.	MAC Address
1	<div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> </div> <div>Read</div>
Select Port 01 Binding Disable Update	

Note: If you enable the MAC address binding function, the address learning function will be disabled automatically.

Port No.	Binding Status	Port No.	Binding Status
1	Disable	14	Disable
2	Disable	15	Disable
3	Disable	16	Disable
4	Disable	17	Disable
5	Disable	18	Disable
6	Disable	19	Disable
7	Disable	20	Disable
8	Disable	21	Disable
9	Disable	22	Disable
10	Disable	23	Disable
11	Disable	24	Disable
12	Disable	25	Disable
13	Disable	26	Disable

Note: The MAC address of current management connection is 00:26:6c:48:af:57 at port 20.

- Port No: Displays the port number being assigned the MAC addresses.
- MAC Address: Users can assign up to 3 MAC addresses to the port.
- Read: Pull down the selection bar to choose a port number and click the read button to show the MAC addresses bound with the port or modify the MAC addresses.
- Select Port: Pull down the selection menu bar to choose a port number to be set.
- Binding: Enable or disable the binding function.

Click Update to have the configuration take effect.

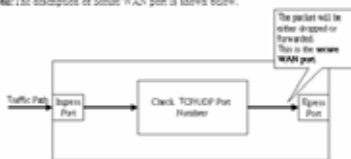
Note: Setting the multicast address to these fields is not allowed. A warning message will show up if you do so.

4.29 TCP/UDP Filter (QoS Setting)

By selecting the TCP/UDP port, the network administrator can optionally block some specific applications. There are two kinds of protocol filter functions. The "forward" function makes the switch forward the selected protocol and drop other protocols. The "negative" function makes the switch drop the selected protocol and forward other protocols. The protocol is checked at the selected secure WAN port. And it should be set at the server side.

TCP_UDP Filter Configuration

Function Enable	Enable											
Port Filtering Rule	<input type="checkbox"/> Aggressive <small>Note:</small> (1) The existing packet with selected protocol will be either forwarded or dropped at secure WAN port as the figure shows below. (2) "negative" means the selected protocol will be dropped and other protocols will be forwarded. "positive" means the selected protocol will be forwarded and other protocols will be dropped.											
Protocol	<input type="checkbox"/> FTP(21)	<input type="checkbox"/> SSH(22)	<input type="checkbox"/> TELNET(23)	<input type="checkbox"/> SMTP(25)	<input type="checkbox"/> DNS(53)	<input type="checkbox"/> TFTP(69)	<input type="checkbox"/> HTTP(80,8080)	<input type="checkbox"/> POP3(110)	<input type="checkbox"/> NNTP(119)	<input type="checkbox"/> STMP(123)	<input type="checkbox"/> NetBOS(137-139)	<input type="checkbox"/> DGAF(443,220)
	<input type="checkbox"/> DNS(51,562)	<input type="checkbox"/> HTTPS(443)	<input type="checkbox"/> X25_RDP(3299)	<input type="checkbox"/> BOOTP_DHCP(67,68)	<input type="checkbox"/> User_Default_A	<input type="checkbox"/> User_Default_B	<input type="checkbox"/> User_Default_C	<input type="checkbox"/> User_Default_D				
Secure WAN port	<input type="checkbox"/> Port01	<input type="checkbox"/> Port02	<input type="checkbox"/> Port03	<input type="checkbox"/> Port04	<input type="checkbox"/> Port05	<input type="checkbox"/> Port06	<input type="checkbox"/> Port07	<input type="checkbox"/> Port08	<input type="checkbox"/> Port09	<input type="checkbox"/> Port10	<input type="checkbox"/> Port11	<input type="checkbox"/> Port12
	<input type="checkbox"/> Port13	<input type="checkbox"/> Port14	<input type="checkbox"/> Port15	<input type="checkbox"/> Port16	<input type="checkbox"/> Port17	<input type="checkbox"/> Port18	<input type="checkbox"/> Port19	<input type="checkbox"/> Port20	<input type="checkbox"/> Port21	<input type="checkbox"/> Port22	<input type="checkbox"/> Port23	<input type="checkbox"/> Port24
	<input type="checkbox"/> 125	<input type="checkbox"/> 126										
	(1288)											
<small>Note:</small> The description of Secure WAN port is shown below.												



4.30 Spanning Tree

There are many management functions can be set or performed if you click the Spanning Tree on Home Page, including:

- STP Bridge Settings
- STP Port Settings
- Loopback Detection Settings

In the following sessions, we will talk in detail about the management functions under the Spanning Tree menu.

4.31 STP Bridge Settings (QoS Setting)

STP Bridge Settings

Spanning Tree Settings				
STP Mode	Bridge Priority (0~61440)	Hello Time (1~10 Sec)	Max Age (6~40 Sec)	Forward Delay (4~30 Sec)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Submit"/>				
<p>Note: $2 * (\text{Forward Delay} - 1) \geq \text{Max Age}$</p> <p>$\text{Max Age} \geq 2 * (\text{Hello Time} + 1)$</p> <p>Bridge Priority must be multiples of 4096</p>				

Note: If you enable the MAC address binding function, the address learning function will be disabled automatically. Then both RSTP/STP and address learning will be affected.

Bridge Status				
STP Mode	Bridge ID	Hello Time	Max Age	Forward Delay
RSTP	32768:00 0F C9 05 BB 57	2	20	15

Root Status			
Root ID	Hello Time	Max Age	Forward Delay
I'm the root bridge!	2	20	15

- **Bridge Priority:** This parameter configures the spanning tree priority globally for this switch. The device with the highest priority becomes the STP root device. However, if all devices have the same priority, the device with the lowest MAC address will then become the root device. Number between 0 - 61440 in increments of 4096. Therefore, there are 16 distinct values.
- **Hello Time:** Interval (in seconds) at which the root device transmits a configuration message (BPDU frame). Number between 1-10 (default is 2).
- **Max Age** – The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. That also means the maximum life time for a BPDU frame. Number between 6-40 (default is 20).
- **Forward Delay:** The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). Number between 4 – 30 (default is 15)

4.32 STP Port Settings (QoS Setting)

STP Port Settings

STP Port Settings		
Port No.	Priority (0~240)	RPC (1~200000000) 0=AUTO
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Submit"/>		
Priority should be a multiple of 16		

STP Port Status						
Port No.	RPC	Priority	State	Status	Designated Bridge	Designated Port
1	Auto:0	0x80	--	Disable	--	--
2	Auto:0	0x80	--	Disable	--	--
3	Auto:0	0x80	--	Disable	--	--
4	Auto:0	0x80	--	Disable	--	--
5	Auto:0	0x80	--	Disable	--	--
6	Auto:0	0x80	--	Disable	--	--
7	Auto:0	0x80	--	Disable	--	--
8	Auto:0	0x80	--	Disable	--	--
9	Auto:0	0x80	--	Disable	--	--
10	Auto:0	0x80	--	Disable	--	--
11	Auto:0	0x80	--	Disable	--	--
12	Auto:0	0x80	--	Disable	--	--
13	Auto:0	0x80	--	Disable	--	--
14	Auto:0	0x80	--	Disable	--	--
15	Auto:0	0x80	--	Disable	--	--
16	Auto:0	0x80	--	Disable	--	--
17	Auto:0	0x80	--	Disable	--	--
18	Auto:0	0x80	--	Disable	--	--
19	Auto:0	0x80	--	Disable	--	--
20	Auto:200000	0x80	Designated Port	Forwarding	--	--
21	Auto:0	0x80	--	Disable	--	--
22	Auto:0	0x80	--	Disable	--	--
23	Auto:0	0x80	--	Disable	--	--
24	Auto:0	0x80	--	Disable	--	--
25	Auto:0	0x80	--	Disable	--	--
26	Auto:0	0x80	--	Disable	--	--

- Choose "Port No." : Port 1 ~ Port 26
- Choose "Priority": 0~ 240
- "RPC" = Root Path Cost: 0 = AUTO. When the loop is found, the STP/RSTP will calculate the cost of its path.

4.33 Loopback Detection Settings (QoS Setting)

Loopback Detection Settings

Loopback Detect Function	Disable ▼
Auto Wake Up	Disable ▼
Wake-Up Time Interval	10 sec ▼
	5 sec
	10 sec
	30 sec
	60 sec

Submit

Reset All Ports

Port No.	Status
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--

4.34 Backup/Recovery

This function provides the user with a method to backup/recovery the switch configuration. The user can save configuration file to a specified file. If the user wants to recover the original configuration, which is saved at the specified path, just enter the password and then press the “upload” button. Finally the original configuration of the switch will be recovered.

Configuration Backup/Recovery

Backup(Switch→PC)

Please check "Download" to download EEPROM contents. Download

Recovery(PC→Switch)

Select the image file :

瀏覽...

Password: Update

4.35 Miscellaneous

Miscellaneous setting is used to configure output queue aging time, VLAN stride and IGMP snooping.

Miscellaneous Setting

Output Queue Aging Time													
Aging time Unit: ms	The output queue aging function allows the administrator to select the aging time of a packet stored in the output queue. A packet stored in the output queue for a long time will lower the free packet buffer, resulting in the poor utilization of the buffer and the poor switch performance.												
VLAN Striding													
VLAN Striding Unit: ms	When this function is enabled, the switch will forward a uni-cast packet to the destination port, no matter whether the destination port is in the same VLAN group.												
IGMP Snooping V1 & V2													
IGMP Snooping Unit: ms	IGMP Snooping V1 & V2 function enable												
IGMP Leave Packet: ms	Leave packet will be forwarded to IGMP router ports.												
VLAN Uplink Setting													
Port 01 Uplink1 Uplink2	Port 02 Uplink1 Uplink2	Port 03 Uplink1 Uplink2	Port 04 Uplink1 Uplink2	Port 05 Uplink1 Uplink2	Port 06 Uplink1 Uplink2	Port 07 Uplink1 Uplink2	Port 08 Uplink1 Uplink2	Port 09 Uplink1 Uplink2	Port 10 Uplink1 Uplink2	Port 11 Uplink1 Uplink2	Port 12 Uplink1 Uplink2	Port 13 Uplink1 Uplink2	Port 14 Uplink1 Uplink2
Port 15 Uplink1 Uplink2	Port 16 Uplink1 Uplink2	Port 17 Uplink1 Uplink2	Port 18 Uplink1 Uplink2	Port 19 Uplink1 Uplink2	Port 20 Uplink1 Uplink2	Port 21 Uplink1 Uplink2	Port 22 Uplink1 Uplink2	Port 23 Uplink1 Uplink2	Port 24 Uplink1 Uplink2	Port 25 Uplink1 Uplink2	Port 26 Uplink1 Uplink2	Port 27 Uplink1 Uplink2	Port 28 Uplink1 Uplink2
<input type="checkbox"/> Clear Uplink1 <input type="checkbox"/> Clear Uplink2													
<input type="button" value="Apply"/>													

- Output queue aging: This function is used to avoid the poor utilization of the switch. When a packet is stored in a switch for a long time, it will expire from the allowable time defined by the protocol and become a useless packet. To prevent these packets from wasting the bandwidth, this switch provide an option for the administrator to enable the queue aging function.
- VLAN Striding: By selecting this function, the switch will forward uni-cast packets to the destination port, no matter whether destination port is in the same VLAN.
- IGMP Snooping: When this function is enabled, the switch will execute IGMP snooping version 1 and version 2 without the intervention of CPU. The IGMP report and leave packets are automatically handled by the switch.

4.36 SNMP

Simple Network Management Protocol is a set of protocols for managing complex networks. The SNMP network contains 3 key elements: managed devices, agents, and network-management systems (NMSs). Managed devices are network devices that content SNMP agents. SNMP agents are programs that reside SNMP capable device's firmware to provide SNMP configuration service. The NMS typically is a PC based software such as HP Openview that can view and manage SNMP network device remotely.

SNMP Settings

Community Settings	
Community Name	Access Right
<input type="text" value="public"/>	<input type="text" value="ReadWrite"/>
<input type="text"/>	<input type="text" value="Read Only"/>
<input type="button" value="Update"/>	

SNMP Settings	
System Description	<input type="text"/>
System Contact	<input type="text"/>
System Location	<input type="text"/>
<input type="button" value="Update"/>	

SNMP Trap Settings	
Trap State	<input type="text" value="Enable"/>
<input type="button" value="Update"/>	

4.37 Logout

The administrator has write access for all parameters governing the onboard agent. User should therefore assign a new administrator password as soon as possible, and store it in a safe place.

Reboot

In the event that the system stops responding correctly or stops functioning, you can perform a Reboot. Your settings will not be changed. To perform the reboot, click on the APPLY button below. You will be asked to confirm your decision. The Reboot will be complete when the LED Power light stops blinking.

A

Appendix A: Product Specifications

Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX IEEE 802.ab 1000BaseT IEEE 802.3z 1000BaseSX/LX IEEE 802.3x Full-duplex and Flow Control IEEE 802.1Q VLAN IEEE 802.1p QoS / Class of Service, Priority Protocols IEEE802.3 Nway Auto-negotiation IEEE802.3af Power over Ethernet
Features	Number of Ports: 10/100BaseTX with RJ-45 Connectors: 24 port with PoE 10/100/1000BaseT with RJ-45 Connectors: 2 Combo SFP Open Slots: 2 MAC Address: 4K Buffer Memory: 1.5Mb Transmission Method: Store and Forward
Filtering/ Forwarding Rates	1000Mbps port – 1,488,000pps 100Mbps port - 148,800pps 10Mbps port - 14,880pps
Transmission Media	10/100BaseTX Cat. 5 UTP/STP 1000BaseT Cat. 5 / Cat. 5E UTP/STP
LED Indicators	Per Port: Link/Act, PoE : Act / Status Per Unit: Power
Power Input	100~240V/AC, 50~60Hz
Power Output	48V/DC per Port Output – 15.4W Max per Port – 24Watt Max Per Port
Power Consumption	250 Watts (Max)
Max supply PoE Power per Device	15.4Watts
Dimensions	445 x 220 x 45 mm (L x W x H)

Weight	2.54 kg
Operating Temperature	0 to 45
Storage Temperature	-20 to 90
Humidity	10 to 90% RH (non-condensing)
Certifications	FCC Class A, CE

B

Appendix B: Troubleshooting

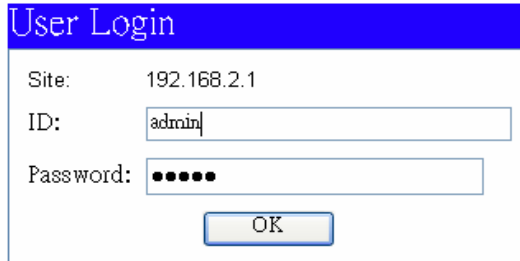
This appendix contains specific information to help you identify and solve problems. If your switch does not function properly, please make sure it is set up according to the instructions on the manual.

If you suspect your switch is not connected correctly to your network, check the following points before you contact your local dealer for support.

- Make sure the Power is ON (Check the Power LED).
- Make sure the cable is connected properly on both ends.
- Make sure that the maximum cable length between switch and end node does not exceed 100 meters (for 10/100/1000BASE-TX connection).
- Make sure that the maximum switch-to-hub/switch cable distance does not exceed 100 meters (for 10/100/1000BASE-TX connection).
- Verify that the cabling type used is correct.
- Check the corresponding Link/Act, FDX/Col, 100M for signs of faulty connection. Check the status of the cable attachment. If the problem persists, try a different cable.
- Try another port on the Switch.
- Turn off power supply to the Switch. After a while, turn it on again to see if it resumes to its normal function.
- If you find out where the problem is but cannot solve it by yourself, or you simply cannot locate what is at fault, please contact your local dealer for technical support.

When you forgot your IP or password, please use the reset button for the factory default setting? Please take the following steps to reset the Web Smart Switch back to the original default:

- Step 1. Turn on the POE-FSH2422G-250 802.3af PoE Switch
- Step 2. Press and hold the reset button continuously for 5 seconds and release the reset button.
- Step 3. The switch will reboot for 20 seconds and the configuration of switch will back to the default setting

A screenshot of a "User Login" dialog box. The title bar is blue with the text "User Login" in white. The dialog box has a white background and a thin blue border. It contains three labels with corresponding input fields: "Site:" followed by a text box containing "192.168.2.1", "ID:" followed by a text box containing "admin", and "Password:" followed by a text box containing five black dots. Below the password field is a button labeled "OK".

User Login	
Site:	192.168.2.1
ID:	admin
Password:	•••••
OK	

Key in the user ID and the password to pass the authentication; the user ID and the password are “admin”

IP: 192.168.2.1

ID: admin

Password: airlvie